

WHAT IS CLAIMED IS:

1. A color cathode ray tube comprising:
a panel installed at a front surface of the cathode ray tube;
a shadow mask for selecting a color of an electron beam emitted from an inside of the panel;
a funnel engaged to a rear surface of the panel for maintaining a vacuum state inside the cathode ray tube;
a deflection yoke surrounding an outer side of the funnel for deflecting the electron beam; and
an electron gun formed behind the funnel,
wherein a curvature coefficient (a/b) of the shadow mask is in a range of about 70,000 - 200,000, where a curvature formula of the shadow mask is defined as a polynomial of $Z(X, Y) = aX^2 + bX^4 + cY^2 + dY^4 + eX^2Y^2 + fX^4Y^2 + gX^2Y^4 + hX^4Y^4$, and where X and Y are defined as arbitrary coordinate points of a horizontal axis (long axis) and a vertical axis (short axis).
2. The color cathode ray tube of claim 1, wherein the curvature coefficient (a/b) of the shadow mask is in a range of about 100,000 -135,000.
3. The color cathode ray tube of claim 1, wherein the curvature coefficient (c/d) of the shadow mask is in a range of about 60,000 -360,000.
4. The color cathode ray tube of claim 1, wherein a curvature radius of an

outer surface of the panel is in a range of about 30,000-100,000m/m.

5. The color cathode ray tube of claim 4, wherein an outer surface curvature radius of a horizontal axis of the panel is in a range of about 25,000-80,000m/m and an outer surface curvature radius of a vertical axis of the panel is in a range of about 50,000-100,000m/m.

6. The color cathode ray tube of claim 1, wherein a curvature radius of an inner surface of the panel is in a range of about $1.5R-4.0R$, where R = a diagonal length of an effective surface of the shadow mask * 1.767.

7. A color cathode ray tube comprising:
a panel installed at a front surface of the cathode ray tube;
a shadow mask for selecting a color of an electron beam emitted from an inside of the panel;

a funnel engaged to a rear surface of the panel for maintaining a vacuum state inside the cathode ray tube;

a deflection yoke surrounding an outer side of the funnel for deflecting the electron beam; and

an electron gun formed behind the funnel,

wherein a curvature coefficient (c/d) of the shadow mask is in a range of about 60,000 -360,000, where curvature formula of the shadow mask is defined as a polynomial of $Z(X, Y) = aX^2 + bX^4 + cY^2 + dY^4 + eX^2Y^2 + fX^4Y^2 + gX^2Y^4 + hX^4Y^4$, and where X and Y are defined as arbitrary coordinate points of a horizontal axis (long axis) and a vertical

axis (short axis).

8. The color cathode ray tube of claim 7, wherein the curvature coefficient (c/d) of the shadow mask is in a range of about 200,000 - 300,000.

9. The color cathode ray tube of claim 7, wherein the curvature coefficient (a/b) of the shadow mask is in a range of about 70,000 - 200,000.

10. The color cathode ray tube of claim 7, wherein the curvature coefficient (a/b) of the shadow mask is in a range of about 100,000 - 135,000.

11. The color cathode ray tube of claim 7, wherein a curvature radius of an outer surface of the panel is in a range of about 30,000 - 100,000m/m.

12. The color cathode ray tube of claim 11, wherein an outer surface curvature radius of a horizontal axis of the panel is in a range of about 25,000-80,000m/m and an outer surface curvature radius of a vertical axis of the panel is in a range of about 50,000-100,000m/m.

13. The color cathode ray tube of claim 7, wherein a curvature radius of an inner surface of the panel is in a range of about $1.5R$ - $4.0R$, where R = a diagonal length of an effective surface of the shadow mask * 1.767.

14. A color cathode ray tube comprising:

a panel installed at a front surface of the cathode ray tube;

a shadow mask for selecting a color of an electron beam emitted from an inside of the panel;

a funnel engaged to a rear surface of the panel for maintaining a vacuum state inside the cathode ray tube;

a deflection yoke surrounding an outer side of the funnel for deflecting the electron beam; and

an electron gun formed behind the funnel,

wherein the shadow mask has a curvature radius gradually decreasing towards a peripheral portion of the shadow mask from a center portion thereof, and wherein a curvature radius at a position corresponding to 80% of an effective distance along a horizontal axis (long axis) from the center portion is decreased by more than 35%, a curvature radius at a position corresponding to 80% of an effective distance along a vertical axis (short axis) from the center portion is decreased by more than 50%, and a curvature radius at a position corresponding to 80% of an effective distance along a diagonal axis from the center portion is decreased by more than 25%, with reference to the curvature radius of the center portion of the shadow mask.

15. The color cathode ray tube of claim 14, wherein a curvature radius of an outer surface of the panel is in a range of about 30,000-100,000m/m.

16. The color cathode ray tube of claim 15, wherein an outer surface curvature radius of a horizontal axis of the panel is in a range of about 25,000-80,000m/m and an outer surface curvature radius of a vertical axis of the panel is in a range of about

50,000-100,000m/m.

17. The color cathode ray tube of claim 14, wherein a curvature radius of an inner surface of the panel is in a range of about $1.5R$ - $4.0R$, where R = a diagonal length of an effective surface of the shadow mask * 1.767.

18. A color cathode ray tube comprising:
a panel installed at a front surface of the cathode ray tube;
a shadow mask for selecting a color of an electron beam emitted from an inside of the panel;

a funnel engaged to a rear surface of the panel for maintaining a vacuum state inside the cathode ray tube;

a deflection yoke surrounding an outer side of the funnel for deflecting the electron beam; and

an electron gun formed behind the funnel,

wherein the shadow mask has a curvature radius gradually decreasing towards a peripheral portion of the shadow mask from a center portion thereof, and wherein a curvature radius at an end portion of an effective surface of the shadow mask along a horizontal axis from the center portion is decreased by more than 40%, a curvature radius at an end portion of the effective surface of the shadow mask along a vertical axis from the center portion is decreased by more than 50%, and a curvature radius at an end portion of the effective surface of the shadow mask along a diagonal axis from the center portion is decreased by more than 50%, with reference to the curvature radius of the center portion of the shadow mask.

19. The color cathode ray tube of claim 18, wherein a curvature radius of an outer surface of the panel is in a range of 30,000-100,000m/m.

20. The color cathode ray tube of claim 19, wherein an outer surface curvature radius of a horizontal axis of the panel is in a range of about 25,000-80,000m/m and an outer surface curvature radius of a vertical axis of the panel is in a range of about 50,000-100,000m/m.

21. The color cathode ray tube of claim 18, wherein a curvature radius of an inner surface of the panel is in a range of about $1.5R-4.0R$, where R = a diagonal length of an effective surface of the shadow mask * 1.767.

22. A color cathode ray tube comprising:
a panel installed at a front surface of the cathode ray tube;
a shadow mask for selecting a color of an electron beam emitted from an inside of the panel;
a funnel engaged to a rear surface of the panel for maintaining a vacuum state inside the cathode ray tube;
a deflection yoke surrounding an outer side of the funnel for deflecting the electron beam; and
an electron gun formed behind the funnel,
wherein the shadow mask has a curvature radius gradually decreasing towards a peripheral portion of the shadow mask from a center portion thereof, and wherein a

curvature radius at a position corresponding to 80% of an effective distance along a horizontal axis (long axis) from the center portion is decreased by about 35-55%, and a curvature radius at an end portion of an effective surface of the shadow mask along the horizontal direction from the center portion is decreased by about 40-70%, with reference to the curvature radius of the center portion of the shadow mask.

23. The color cathode ray tube of claim 22, wherein a curvature radius at a position corresponding to 80% of the effective distance along a vertical axis from the center portion is decreased by about 50-90%.

24. The color cathode ray tube of claim 22, wherein a curvature radius located at a position corresponding to 80% of the effective distance along a diagonal axis from the center portion is decreased by about 25-50%, and a curvature radius at an end portion of the effective surface of the shadow mask along the diagonal axis from the center portion is decreased by about 50-90%.

25. The color cathode ray tube of claim 22 wherein a curvature radius of an outer surface of the panel is in a range of about 30,000-100,000m/m.

26. The color cathode ray tube of claim 25, wherein an outer surface curvature radius of a horizontal axis of the panel is in a range of about 25,000-80,000m/m and an outer surface curvature radius of a vertical axis of the panel is in a range of about 50,000-100,000m/m.

27. The color cathode ray tube of claim 22, wherein a curvature radius of an inner surface of the panel is in a range of about $1.5R$ - $4.0R$, where R = a diagonal length of an effective surface of the shadow mask * 1.767.

28. A color cathode ray tube comprising:
a panel installed at a front surface of the cathode ray tube;
a shadow mask for selecting a color of an electron beam emitted from an inside of the panel;
a funnel engaged to a rear surface of the panel for maintaining a vacuum state inside the cathode ray tube;
a deflection yoke surrounding an outer side of the funnel for deflecting the electron beam; and
an electron gun formed behind the funnel,
wherein the shadow mask has a curvature radius gradually decreasing towards a peripheral portion of the shadow mask from a center portion thereof, and wherein a curvature radius at a position corresponding to 80% of an effective distance along a vertical axis from the center portion is decreased by about 50-90%, with reference to the curvature radius of the center portion of the shadow mask.

29. The color cathode ray tube of claim 28, wherein a curvature radius at a position corresponding to 80% of the effective distance along a diagonal axis from the center portion is decreased by about 25-50%, and a curvature radius at an end portion of the effective surface of the shadow mask along the diagonal axis from the center portion is decreased by about 50-90%.

30. The color cathode ray tube of claim 28, wherein a curvature radius of an outer surface of the panel is in a range of about 30,000-100,000m/m.

31. The color cathode ray tube of claim 30, wherein an outer surface curvature radius of a horizontal axis of the panel is in a range of about 25,000-80,000m/m and an outer surface curvature radius of a vertical axis of the panel is in a range of about 50,000-100,000m/m.

32. The color cathode ray tube of claim 28, wherein a curvature radius of an inner surface of the panel is in a range of about $1.5R-4.0R$, where R = a diagonal length of an effective surface of the shadow mask * 1.767.

33. The color cathode ray tube of claim 1, wherein a wedge ratio of the panel is in a range of about 170-230%, where wedge ratio = thickness of a corner of the panel / thickness of a center portion of the panel.

34. The color cathode ray tube of claim 1, wherein the panel and the shadow mask are used for a monitor.

35. A color cathode ray tube comprising:
a panel installed at a front surface of the cathode ray tube;
a shadow mask for selecting a color of an electron beam emitted from an inside of the panel;

a funnel engaged to a rear surface of the panel for maintaining a vacuum state inside the cathode ray tube;

a deflection yoke surrounding an outer side of the funnel for deflecting the electron beam; and

an electron gun formed behind the funnel,

wherein the shadow mask has a curvature radius gradually decreasing towards a peripheral portion of the shadow mask from a center portion thereof, and wherein a curvature radius at a position corresponding to 80% of the effective distance along the diagonal axis from the center portion is decreased by about 25-50%, and a curvature radius at an end portion of the effective surface of the shadow mask along the diagonal axis from the center portion is decreased by about 50-90%, with reference to the curvature radius of the center portion of the shadow mask.

36. The color cathode ray tube of claim 1, wherein an outer surface of the funnel to which the deflection yoke is mounted is a non-circle shape having a maximum diameter in a direction except the horizontal direction and the vertical direction.